



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,478	10/15/2004	Shigeyoshi Hasegawa	10873.1547USWO	4666
7590 10/09/2008 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902-0902 MINNEAPOLIS, MN 55402				
EXAMINER				
LEACH, CRYSTAL I				
ART UNIT		PAPER NUMBER		
3737				
MAIL DATE		DELIVERY MODE		
10/09/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/511,478

Applicant(s)

HASEGAWA ET AL.

Examiner

CRYSTAL I. LEACH

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date 2/8/2007.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application.
- 6) ☐ Other: \_\_\_\_\_.

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

**DETAILED ACTION**

***Information Disclosure Statement***

2. The Information Disclosure Statements (IDS) submitted on February 8, 2007 is in compliance with 37 CFR 1.97 and 1.98. The references therein have been considered.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowley (5,715,825) in view of Abe (JP 2002078673).

Crowley teaches an ultrasonic probe (6), comprising an ultrasonic element (10) for transmitting and receiving ultrasonic waves (col. 14, line 59 -16); and a sound window (24) and (25) enclosing the ultrasonic element; and a sound propagation liquid (col. 11, lines 39-41) charged in the sound window, wherein a barrier layer (12) capable of inhibiting the permeation of liquids and gases (Abstract, lines 1-2) is provided on a wall surface of the sound window (col. 10, lines 41-42). See figures 1-5.

Crowley does not explicitly teach the barrier layer comprising at least one selected from a polyparaxylylene layer and a metal layer, wherein the thickness of the polyparaxylylene layer is in the range from 0.1  $\mu\text{m}$  to 500  $\mu\text{m}$  and the polyparaxylylene layer is formed by vapor deposition of diparaxylylene or the derivative thereof.

Abe teaches a barrier located on an internal wall surface of a sound window (see abstract) wherein the barrier layer comprises a polyparaxylylene layer having a thickness in the range of 0.1  $\mu\text{m}$  - 75 $\mu\text{m}$  (Abstract) and being formed by vapor deposition of diparaxylylene or the derivative thereof ([0087], lines 1-2).

It would have been obvious to one having ordinary skill in the art at the time of the invention to form the barrier layer of polyparaxylylene in the Crowley invention, in light of the teaching of Abe in order to enhance the durability of the probe and increase impermeability characteristics of the barrier layer ([0081]). The range as taught by Abe is within the range disclosed by the applicant and therefore, teaches the range disclosed by the applicant.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowley (5,715,825) in view of Abe (JP 2002078673) and further in view of Law et al. (5,469,853).

Crowley does not teach the barrier layer comprising a metal layer and the metal layer comprising at least one selected from the group consisting of aluminum, gold, nickel and platinum, wherein the thickness of the layer in the range from 0.1 $\mu\text{m}$  - 30 $\mu\text{m}$ .

Law et al. teach the barrier layer, for example, a sheath, comprising a metal layer

and the metal layer comprising at least one selected from the group consisting of aluminum, gold, nickel and platinum (col. 18, lines 52-53 and col. 35, lines 20-24), wherein the thickness of the layer is no greater than 0.4 mm (col. 18, lines 35-36).

It would have been obvious to one having ordinary skill in the art at the time of the invention to include a metal barrier layer, wherein the metal layer comprises at least one selected from the group consisting of aluminum, gold, nickel and platinum in the invention of Crowley in view of Abe, in light of the teachings of Law et al. in order to enhance the durability of the probe. The thickness of the barrier layer taught by Law et al. may be any value less than 0.4mm, which includes the values of the range claimed by the applicant. It would have been obvious to one having ordinary skill in the art at the time of the invention to select values within the range of 0.1 $\mu$ m - 30  $\mu$ m in order to have the most optimal barrier layer thickness required to effectively perform the procedure.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crowley (5,715,825) in view of Abe (JP 2002078673) and further in view of Verdonk (5,640,961).

Crowley does not teach the barrier layer comprising a plurality of layers.

Verdonk teaches the barrier layer comprising a plurality of layers (col. 8, lines 9-10 and lines 13-16).

It would have been obvious to one having ordinary skill in the art at the time of the invention to include a barrier layer comprising a plurality of layers in the Crowley in view of Abe apparatus, in light of the teaching of Verdonk in order to improve focusing of the ultrasonic beam (col. Col. 8, lines 13-18).

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal I. Leach whose telephone number is 571-272-5211. The examiner can normally be reached on Monday through Friday, 8 am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/

Application/Control Number: 10/511,478  
Art Unit: 3737

Page 6

Supervisory Patent Examiner, Art  
Unit 3737

/Crystal I Leach/

Examiner, Art Unit 3737